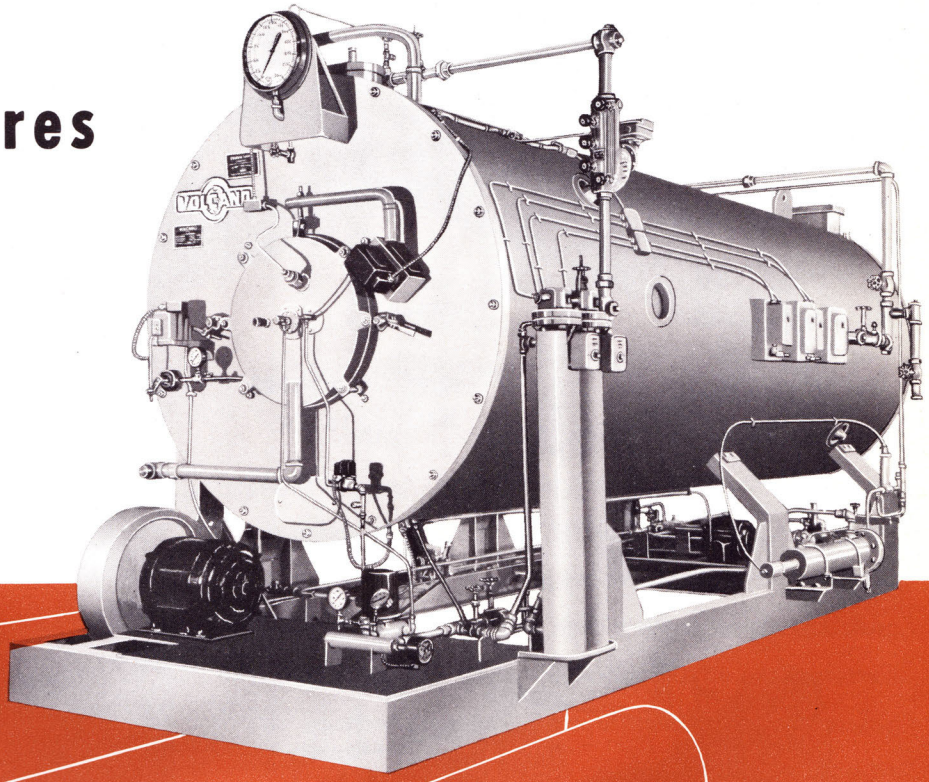
VOLCANO

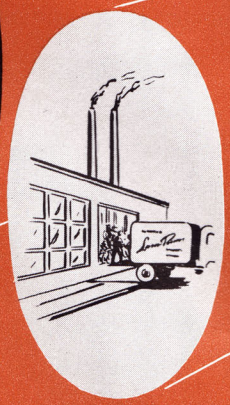
STARFIRE

AUTOMATIC BOILERS

all pressures

oil or gas





VOLCANO

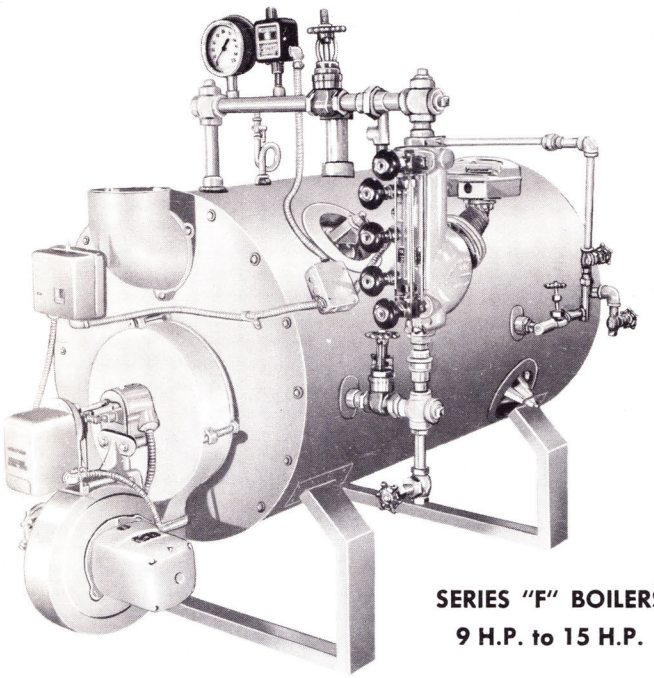
A.I.A. 34-B-1

MEMBER CANADIAN BOILER SOCIETY

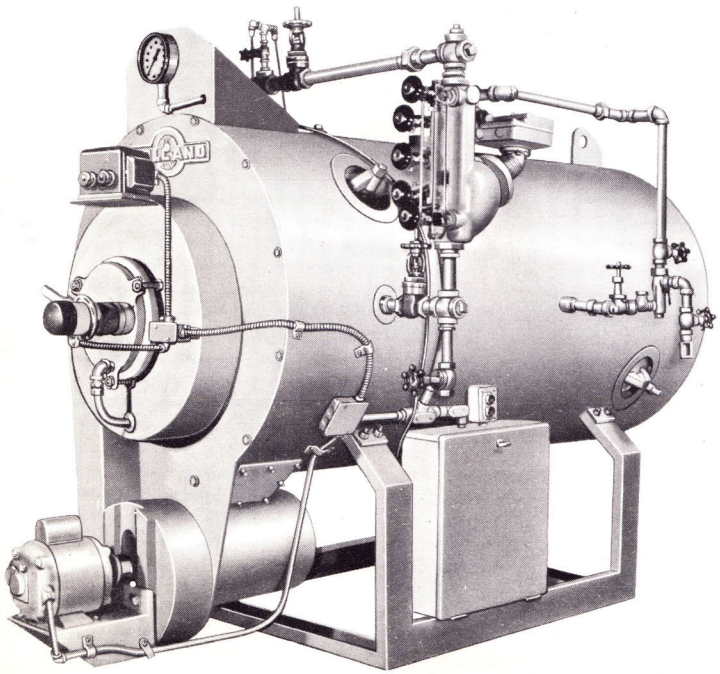
VOLCANO LIMITED

ALL PRESSURES

Oil — gas
or any combination



SERIES "F" BOILERS
9 H.P. to 15 H.P.



SERIES "G" BOILERS
20 H.P. to 60 H.P.

GENERAL INFORMATION

Pre-assembly of boilers in the Manufacturer's shop has increased markedly during the past few years. Industrial customers like the idea of buying a completely packaged unit with integrated auxiliaries, thereby minimizing both the cost of field direction and the necessity for in-plant coordination of engineering details. Efforts can be directed primarily at selecting the proper design to provide satisfactory operation for the specific service requirements.

The VOLCANO "STARFIRE" Automatic Boiler is the most modern combination boiler and oil firing unit available. It is designed to provide a complete boiler package for economical and efficient steam generation. These units are available from 9 H.P. to 500 H.P., for heavy oil, light oil, or gas firing, or a combination of fuels. All pressures are available also hot water heating units.

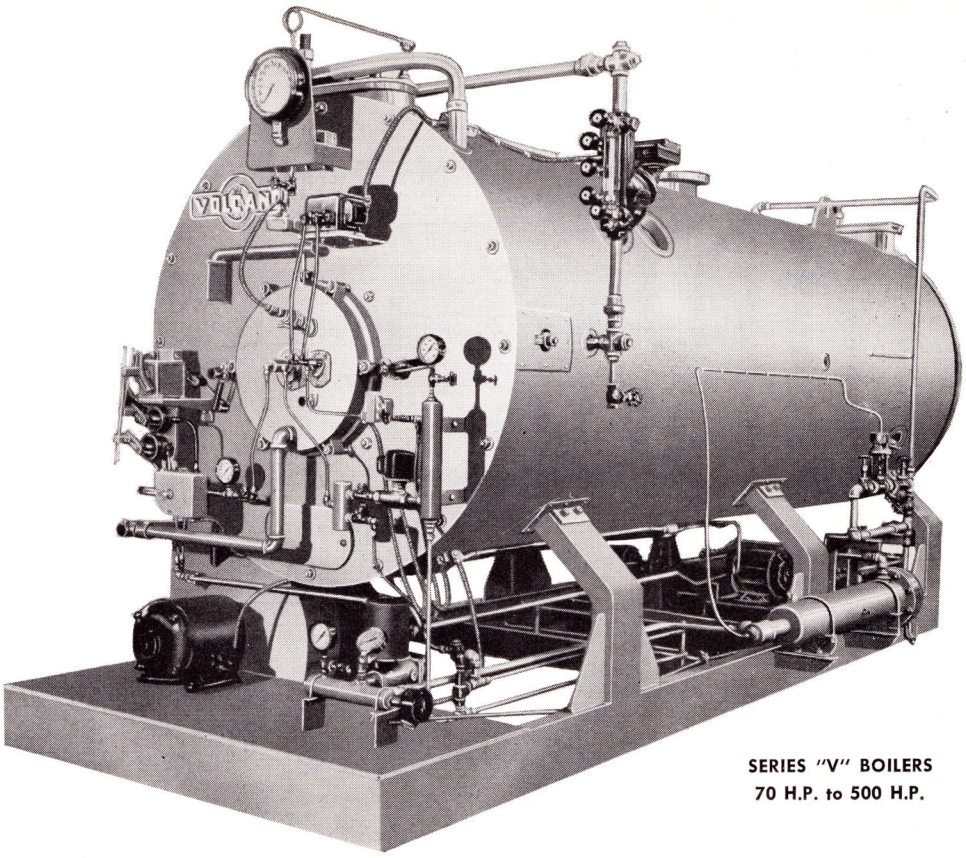
VOLCANO "STARFIRE" Boilers are entirely manufactured in Canada in our own plant. All units are built according to A.S.M.E. Code; in all cases bear a Provincial Registration number, C.S.A. and U.L. approvals.

COMPLETE UNIT

VOLCANO Boilers are so thoroughly packaged that, when connected to customer's steam, water, fuel, and electric lines, they are ready for operation. No foundation is required; all that is needed is a level floor, preferably concrete or cement, of sufficient thickness to carry the load.

TWO TYPES OF CONSTRUCTION

VOLCANO "STARFIRE" Boilers are of the three pass design and are available with either 4 or 5 sq. ft. of heating surface per horse power. Three inch diameter tubes is standard equipment and the shell is a proven modified Scotch Design (smaller model "F" is two-pass design with smaller tubes).



SERIES "V" BOILERS
70 H.P. to 500 H.P.

HIGH EFFICIENCY

VOLCANO Automatic Boilers are designed to operate at very high efficiency. Resulting savings in fuel derive from : —

A — Efficient three pass design;

B — Fully modulated flame (from 70 H.P. up, heavy oil);

C — Fast steaming qualities (dry steam);

D — Accurately proportioned metering of air and fuel;

E — Fully automatic operation through entire cycle;

F — Rapid transfer of heat to boiler surfaces.

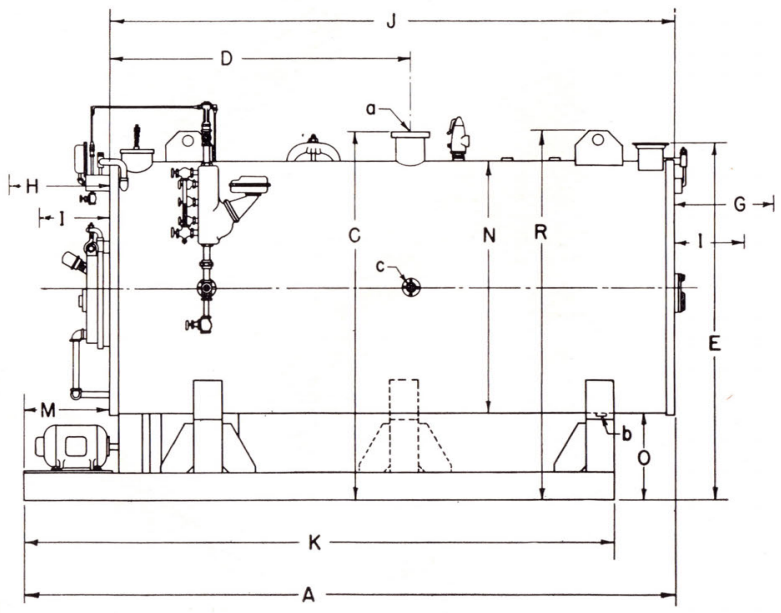
G — 3" tubes throughout;

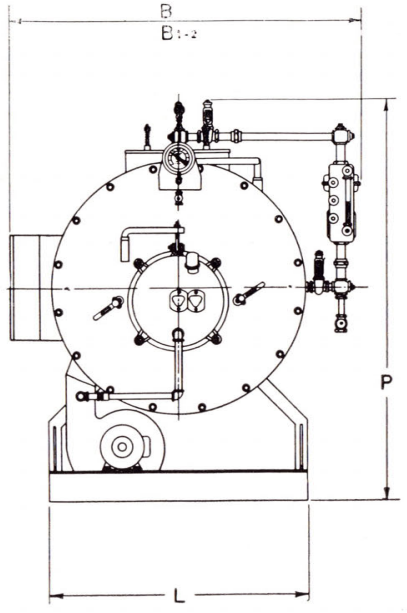
H — No staggered tubes in boiler.

LOW INSTALLATION COST

Compact design requires smaller boiler room. In many instances it has been possible to replace an existing boiler by a VOLCANO "STARFIRE" Automatic Unit having twice the capacity, without having to enlarge the boiler room or the existing chimney. Moreover, the boiler can be easily moved to another location if required. These automatic boilers — a VOLCANO product — are backed by a century old company, who specializes in automatic heating equipment. When you buy a STARFIRE Boiler the one and only responsibility lies with a Company who has both the knowhow, facilities and a sincere desire to be of genuine service to its clientele.

OVER 200,000,000 HORSE POWER PRODUCED DURING THE COURSE OF ONE YEAR WITHOUT A SINGLE TUBE FAILURE.





DISTANCE REQUIRED TO WITHDRAW TUBES (G or H) MUST BE PROVIDED FOR EITHER AT THE FRONT OR AT THE BACK OF THE UNIT — ONE ONLY IS REQUIRED.

CLEANING BEING MADE AT THE REAR IT IS ADVISABLE TO LEAVE A MINIMUM OF 3 FT. (DISTANCE "I").

ALL DIMENSIONS ARE IN INCHES

DIMENSIONS AND RATINGS – SERIES V

CATALOG No. - H.P. - Based on 4 Sq. Ft.	V-70	V-80	V-100	V-125	V-150	V-200	V-250	V-300	V-350	V-400	V-500
CAPACITIES											
Steam — Lbs/Hr.	2415	2760	3450	4313	5175	6900	8625	10350	12075	13800	17250
B.T.U. — Thousands	2345	2680	3350	4188	5025	6700	8375	10050	11725	13400	16800
E.D.R. (Gross) — Steam	9771	11167	13959	17448	20938	27917	34896	41875	48860	55840	70000
E.D.R. (Gross) — Water	15634	17867	22334	27917	33500	44667	55834	67000	78169	89336	11200
Approx. Shipping Wt. Lbs.	9300	10100	12500	14500	19600	23300	24700	28900	31000	34200	42800
A —Overall Length	162	183	176	209	218	202	238	242	268	312	313
B —Overall Width — High Pressure	79½	79½	82½	82½	92½	99½	99½	105½	105½	105½	112
B1—Overall Width — Low Pressure	74½	74½	77½	77½	87½	94½	94½	100½	100½	100½	107
B2—Overall Width — Hot Water	71	71	74	74	83	90	90	96	96	96	102
C —Height Steam Outlet	85½	85½	93½	93½	101½	108½	108½	118½	118½	118½	131
D —Location Steam Outlet	78	89	85¾	101¾	106¾	96	114¼	116	134½	151¼	149¾
E —Height Gas Vent	83½	83½	91½	91½	99½	106½	106½	116½	116½	116½	129
F —Stack Dia.	12	12	16	16	18	20	20	22	24	26	28
G —To Draw Tubes	101	126	114	142	153	127	164	161	194	228	224
H —To Draw Tubes	100	124	111	139	152	125	162	159	194	228	220
I —To Open Flue Covers	32	32	34	34	35	37	37	40	40	40	43
J —Length Shell Over Flue Covers	135¾	158¼	151¼	183¼	193½	172	208¼	212¼	248½	282½	279¼
K —Length Skids	137¾	147	159½	192	194¼	176¾	218	209¼	253	286¼	282¼
L —Width Skids	62	62	68	68	74	80	80	86	86	86	92
M —Extension Front of Shell	25¾	25	25	25¼	24¾	29¾	29¾	29½	29½	29½	31¼
N —Diameter Jacket	58	58	64	64	71	77	77	83	83	83	89¼
O —Height Underside Jacket	23	23	25	25	26½	27½	27½	31½	31½	31½	38
P —Highest Removable Point	94	94	102	102	110½	117½	117½	127½	127½	127½	142
R —Highest Fixed Point	86½	86½	95	95	103	110	110	120	120	120	133
OVER 15 LBS. DESIGN STEAM PRESSURE											
a —Main Steam Opening	4	4	5	5	5	6	6	6	6	6	8
b —Blowoff Opening	1½	1½	1½	1½	2	2-2	2-2	2-2	2-2	2-2	2-2½
c —Feed Water Opening	1¼	1¼	1¼	1¼	1½	2	2	2	2	2	2½
15 LBS. DESIGN STEAM PRESSURE OR LESS											
a —Main Steam Opening	6	6	8	8	10	10	10	12	12	12	12
b —Return Opening	4	4	4	4	5	5	5	6	6	6	6
c —Makeup Water Opening	1¼	1¼	1¼	1¼	1½	2	2	2	2	2	2½
30 LBS. DESIGN WATER PRESSURE											
a —Flow Opening	6	6	8	8	10	10	10	12	12	12	12
b —Return Opening	6	6	8	8	10	10	10	12	12	12	12

THE FACTS

1 — Push Button Station — For starting and stopping Unit.

2 — Electronic Flame Control — Quick acting type: For stopping Unit is case of flame failure.

3 — Dampers — For accurate control of secondary air for proper combustion.

4 — Burner Head — Refractory lined: Provides mount for main and pilot burners, combustion control, ignition electrodes and peep hole.

5 — Pressure Atomizing Burner — For complete fuel atomization and perfect combustion.

6 — Forced Draft Blower — For positive supply of air for proper combustion. — Air silencer.

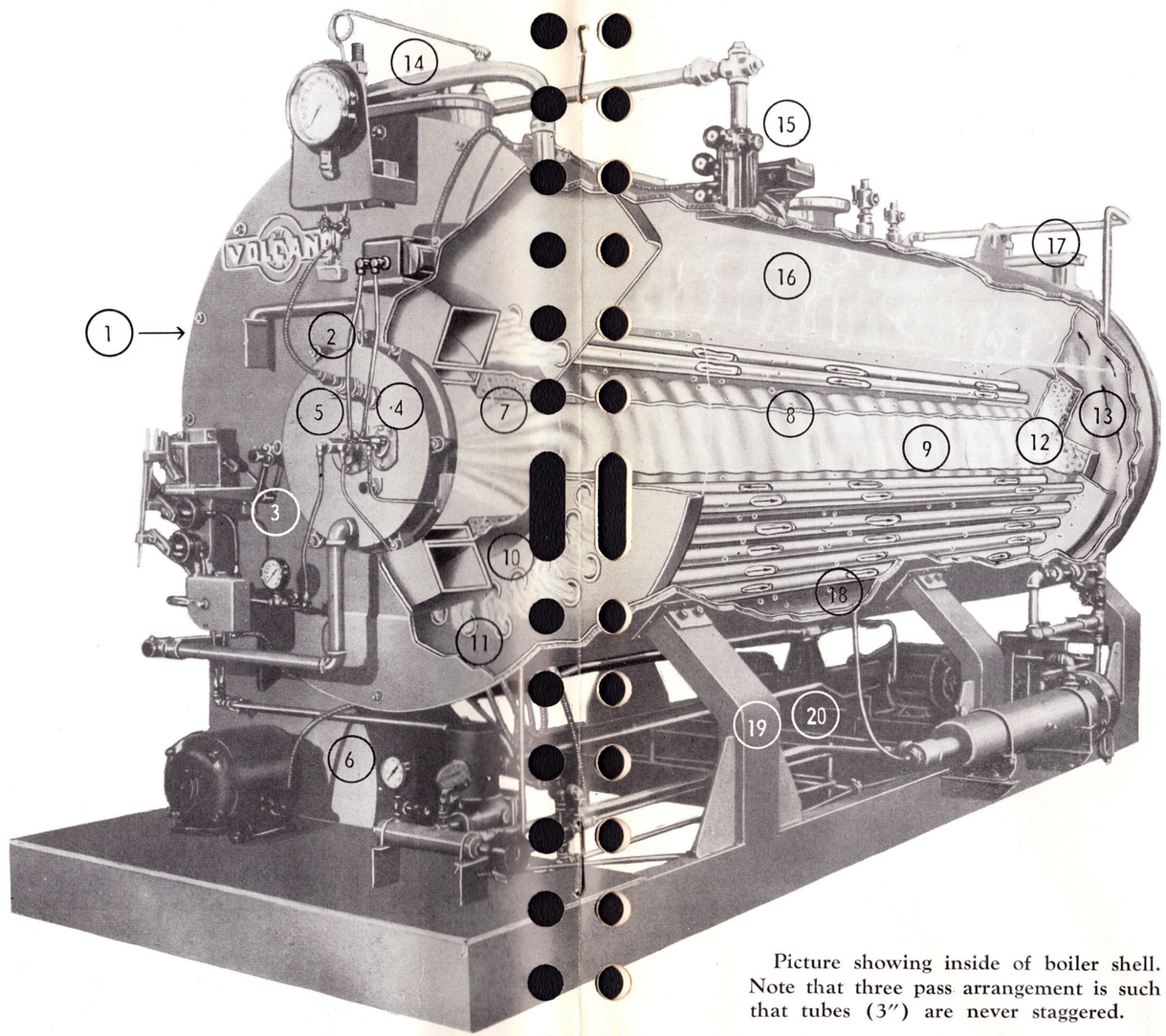
7 — Ignition Ring — Refractory Type: Provides proper radiant surface for completing ignition.

8 — Furnace — Fusion welded to heads: Units for 15 lbs. design steam pressure or less, and for 30 lbs. design water pressure, have plain furnaces; Units for over 15 lbs. design steam pressure, F-9 through G-60, have plain furnaces; V-70 and larger have corrugated furnaces.

9 — First Pass—Furnace: gases flow front to rear.

10 — Second Pass — Inner row tubes around furnace: gases flow rear to front.

11 — Third Pass — Outer row tubes around furnace: gases flow front to rear.



Picture showing inside of boiler shell. Note that three pass arrangement is such that tubes (3″) are never staggered.

12 — Rear Baffle — Refractory filled metal container: one piece construction for easy removal and replacement. Bolted in place, providing gastight joint.

13 — Flue Covers — Front and rear of Unit: Insulated and bolted in place, providing gastight joint.

14 — Davit-Type Hinges — For front and rear flue covers, burner head and rear baffle, G-30 and larger: provide support which makes for easy opening and permits swinging out of the way for inspection and cleaning.

15 — Low Water Cut-Off — Dependable, positive type: Actuated by water in boiler. Not standard with water boilers.

16 — Steam Space — Ample storage capacity and releasing surface.

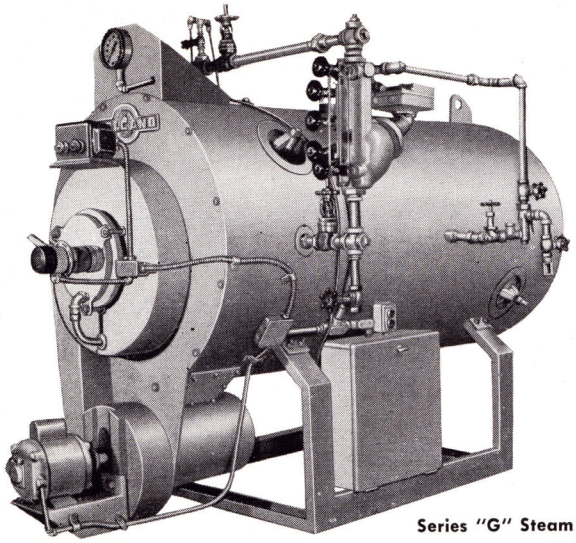
17 — Gas Vent — Arranged for bolting to customer's breeching or stack: No large stack required, only a short vent pipe to clear surrounding buildings.

18 — Insulation and Jacket — Factory installed: Entire shell covered with best quality, blanket type insulation, plus neat sheet protective enameled jacket.

19 — Supports — Rigid structural frame: eliminates costly brick settings and foundations. No foundation bolts required.

20 — Accessibility — All equipment is completely accessible for inspection, repair or replacement. This may be one of the most important feature. Rapid service without the necessity of replacing any material throughout the unit.

VOLCANO LIMITED



Series "G" Steam Boilers
20 H.P. to 60 H.P.

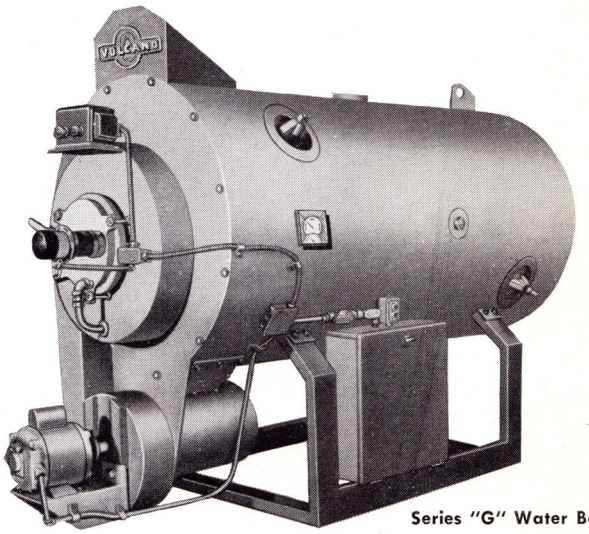
FOR MEDIUM SIZE POWER JOBS

Series "G" VOLCANO "STARFIRE" steam boilers give you big boiler performance with unmatched quality of components. These units are the result of coordinated design by VOLCANO engineers and bring you a tested proven product which can be installed at a saving, both in initial and operating cost. The unusually large steam space always assures dry steam at the nozzle and ample reserve steam capacity.

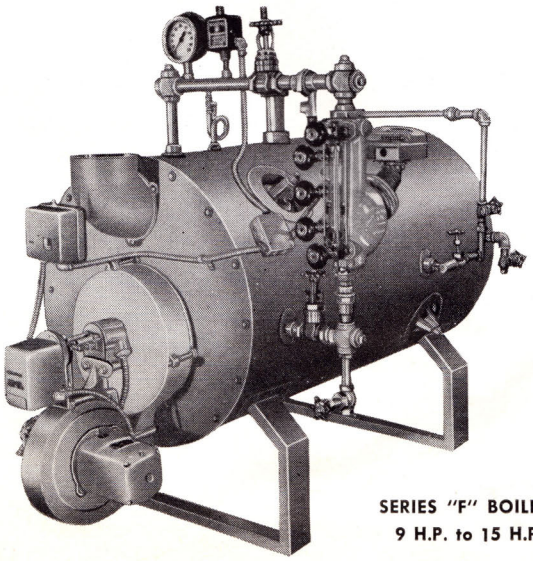
SERIES F & G

FOR COMMERCIAL HOT WATER HEATING JOBS

In the past few years owners of Commercial Buildings have shown an intense interest in hot water generating equipment. VOLCANO "STARFIRE" Hot Water Boilers provide a coordinated engineering design that assures optimum performance. Minimum effort is required at the project site to place the equipment in service. The purchaser can also arrange multiple installation to assure high operating efficiency under all load conditions.



Series "G" Water Boilers
3660 to 10,990 sq. ft.
steam E.D.R. net

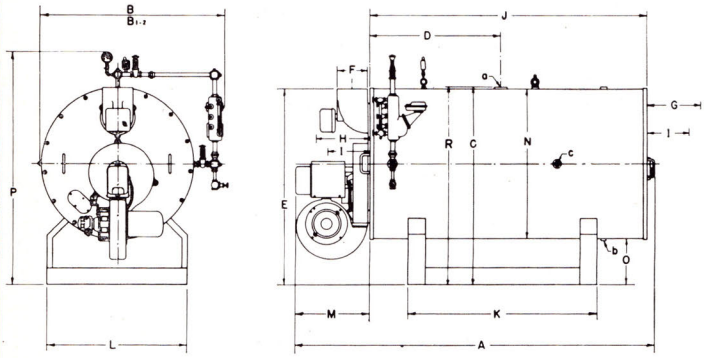


SERIES "F" BOILERS
9 H.P. to 15 H.P.

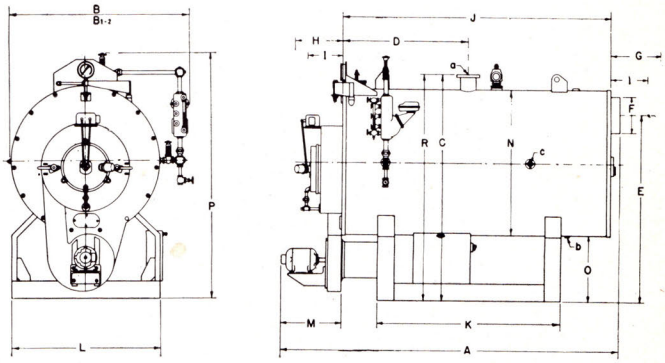
SMALL STEAM LOADS

The Series "F" VOLCANO "STARFIRE" Boiler has been designed for small steam requirements. It is a modified two pass Scotch Design and is particularly well suited for small laundries, cleaning establishments, bottling plants, etc. It is also available for hot water heating and thus can be used in small office buildings, churches and other institutional buildings and small industrial plants. The series "F" boiler is a real economy size job which will give years of trouble free operation.

DIMENSIONS AND RATINGS – SERIES F AND G



SERIE "F"



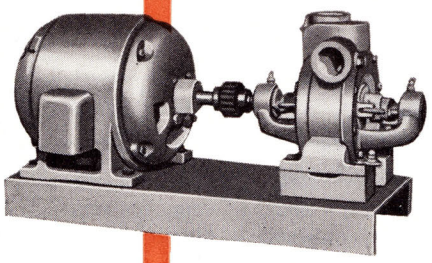
SERIE "G"

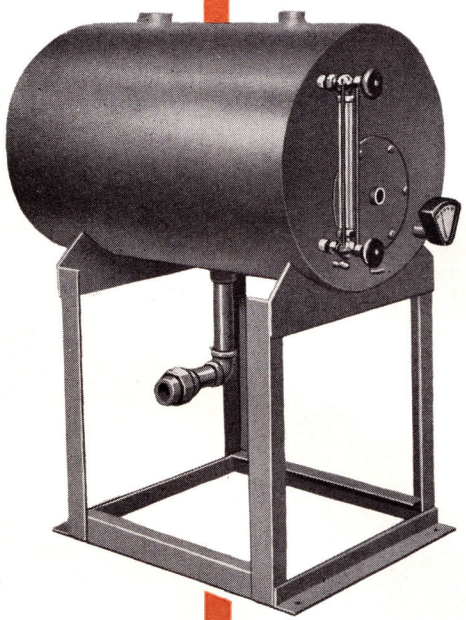
CATALOG No. · H.P. · Based on 4 SQ. FT.	F-9 *	F-12 *	F-15 *	G-20	G-25	G-30	G-40	G-50	G-60
CAPACITIES									
Steam — Lbs/Hr.	310	415	518	690	863	1035	1380	1725	2070
B.T.U. — Thousands	300	400	500	670	838	1005	1340	1675	2010
E.D.R. (Gross) — Steam	1255	1675	2094	2792	3490	4188	5584	6980	8375
E.D.R. (Gross) — Water	—	—	3350	4467	5584	6700	8934	11167	13400
Approx. Shipping Wt. Lbs.	1925	2000	2300	3200	3800	4300	5200	6600	7300
A —Overall Length	69¾	84¾	99¼	99¼	109¼	103	119½	119¼	135¼
B —Overall Width — High Pressure	42	42	42	48¾	48¾	55	55	61	61
B1—Overall Width — Low Pressure	41½	41½	41½	44¾	44¾	51	51	57	57
B2—Overall Width — Hot Water	36	36	36	42½	42½	49	49	55	55
C —Height Steam Outlet	45½	45½	45½	58	58	68	68	79	79
D —Location Steam Outlet	23	30½	37¾	35½	40½	37½	45¾	45	53
E —Height Gas Vent	45½	45½	45½	50¾	50¾	60¼	60¾	66½	66½
F —Stack Dia.	7	7	7	10	10	10	10	12	12
G —To Draw Tubes	34	49	64	48	58	52	68	66	82
H —To Draw Tubes	37	52	67	46	56	50	66	64	80
I —To Open Flue Covers	—	—	—	—	—	30	30	30	30
J —Length Shell Over Flue Covers	50	65	79½	76	86	80	96½	95	111
K —Length Skids	34	49	63½	45½	55½	50½	68	66	80½
L —Width Skids	32	32	32	38	38	45½	45½	51½	51½
M —Extension Front of Shell	17½	17½	17½	20¼	20¼	20	20	21¼	21¼
N —Diameter Jacket	32½	32½	32½	38½	38½	45½	45½	51½	51½
O —Height Underside Jacket	12½	12½	12½	18¾	18¾	22¼	22¼	23	23
P —Highest Removable Point	64½	64½	64½	70¾	70¾	80¾	80¾	88	88
R —Highest Fixed Point	45½	45½	45½	61¼	61¼	71¼	71¼	78	78
OVER 15 LBS. DESIGN STEAM PRESSURE									
a —Main Steam Opening	2	2	2	2	2	3	3	3	3
b —Blowoff Opening	1	1	1	1	1	1¼	1¼	1¼	1¼
c —Feed Water Opening	1	1	1	1	1	1	1	1	1
15 LBS. DESIGN STEAM PRESSURE OR LESS									
a —Main Steam Opening	3	3	3	4	4	4	4	6	6
b —Return Opening	2	2	2	3	3	3	3	4	4
c —Makeup Water Opening	1	1	1	1	1	1	1	1	1
30 LBS. DESIGN WATER PRESSURE									
a —Flow Opening	3	3	3	4	4	4	4	6	6
b —Return Opening	3	3	3	4	4	4	4	6	6

* Series "F" Boilers are based on 6.9 sq. ft.

ALL DIMENSIONS ARE IN INCHES

FEED PUMP AND CONDENSATE TANK





CONDENSATE UNIT

A standard condensate unit is made up of the following items :

1 — CONDENSATE TANK WITH :

Supports,
Float type make-up water valve,
Thermometer,
Water gauge,

2 — FEED PUMP WITH :

Drive motor,
Flexible coupling,
Strainer,
Feed globe valve,
Feed check valve,

3 — FEED PUMP CONTROLS :

The boiler feed pump is actuated by a float type control which is always supplied and installed on the boiler. The feed pump motor starter when required is included but not installed.

The basic price of all generators does not include the condensate unit. However according to individual requirements, any of these items can be supplied for either high or low pressure.

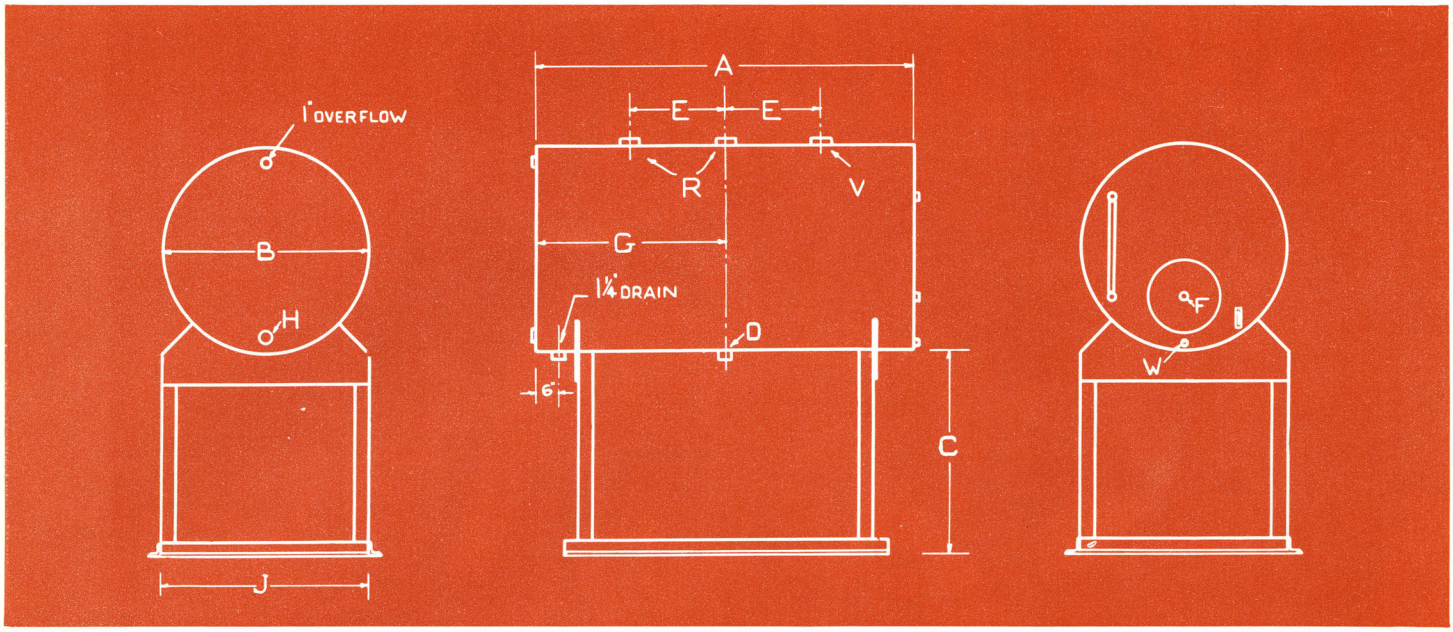
The condensate tank is welded throughout and is regularly mounted on structural steel supports, independent of the steam generator.

The feed pump is of the turbine type and size is based on supplying two to three times the evaporating rate of the steam generator against full design pressure.

The feed pump is provided with sub-base and is always supplied separately.

The condensate unit is designed for open vented type operation at atmospheric pressure only.

VOLCANO



The table below gives dimensions of Condensate Tank for use with either a single Boiler or battery of Boilers. If furnished with battery of boilers, figure total rated boiler horsepower involved, find this total in left-hand column of table below, and read dimensions to the right. Number and size of openings may vary with number of boilers involved; consult Home Office for details.

HORSE POWER	ALL DIMENSIONS ARE IN INCHES												
	DIMENSIONS						SIZE OF OPENINGS						Capacity Full Tank—Gallons
	A	B	C	E	G	J	D	F	H	R	V	W	
							Discharge	Note 1	Note 2	Return	Vent	Note 3	
9-40 *	30	20	13	7½	15	20	1¼	¾	1¼	1-2	1¼	½	40
50-80 *	30	26	15	7½	15	26	1¼	¾	1½	2-2	2	¾	70
100-150	48	26	26	12	24	26	1¼	¾	2	2-2	2	1	110
200-300	60	30	26	15	30	30	2½	1	2	2-2	2	1½	180
400	72	36	30	18	36	36	3	1	2	2-2½	3	1½	315
500	72	42	30	18	36	42	3	1	2	2-2½	3	1½	430
600	84	42	30	21	42	42	3	1	2	2-3	3	1½	500
800	90	48	33	24	45	48	4	1½	2	2-4	3	2	700

NOTE 1. — Opening "F" is main cold make-up water inlet and is same size as the float valve controlling the make-up water.

NOTE 2. — Opening "H" is for water heater of Penberthy type and is provided with screwed plug only, unless the heater is ordered at extra charge.

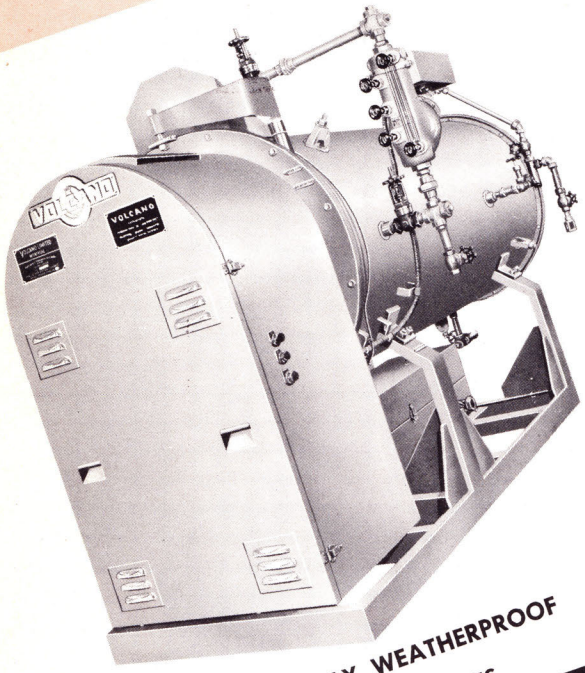
NOTE 3. — Opening "W" is an auxiliary cold make-up water inlet and is supplied with screwed plug only.

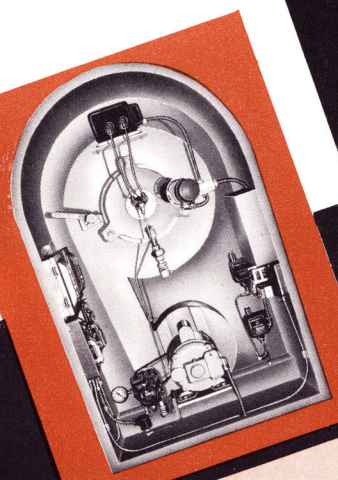
Two or more VOLCANO Automatic Boilers may be set in battery, using but one Condensate Tank, however, we definitely recommend an individual Feed Pump for each Boiler.

Write the Home Office for prices on these special applications, giving full details.

* For more specific information refer to line drawing.

VOLCANO





COMPLETELY WEATHERPROOF
PORTABLE UNITS

MADE IN CANADA

VOLCANO Engineering scores another "hit" in bringing you these modern self-contained STARFIRE Boilers. VOLCANO Boilers are manufactured in a modern plant located thirty miles out of Montreal. Under one roof are contained pattern shops, machine shops, founderies, boiler shops, research and engineering departments devoted exclusively to the design and manufacture of heating equipment. HEATING IS OUR BUSINESS — Established over 100 years ago VOLCANO LIMITED has kept stride with industries demanding improved and more modern heating equipment, and today Volcano products are a standard of comparison.

VOLCANO LIMITED

LITHO-CANADA

T.F.L. 5M-9-56

HEAD OFFICE :
8635 St. Lawrence Blvd.
MONTREAL

Tel.: DU. 1-6281 *

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S. S. KRESGE LIMITED

LELAND ELECTRIC

McCOLL FRONTENAC

ONTARIO ASSOCIATION OF ARCHITECTS

PEPSI COLA

ROYAL CANADIAN AIR FORCE

SINGER MANUFACTURING

SYLVANIA ELECTRIC

TRANS CANADA AIR LINES

UNDERWRITERS LABORATORY

and score of others.

LOW PRESSURE